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REMARKS

Claims 1-12 remain pending in the above-identified application and currently stand rejected following the Official action of 13 February 2009. Applicants request reconsideration of the rejection in view of the following remarks.

Before proceeding to address the rejections of the claims, applicants will briefly summarize their invention to assist the examiner in better appreciating the differences between applicants' invention and the art of record. As recited in claim 1, applicants' have invented a new technique for modeling film grain patterns. Applicants' technique commences by first transforming into the frequency domain a set of film grain samples, representing at least one group of neighboring pixels that retain information about the size and shape of film grain patterns. The coefficients that result from such a transform undergo storage. Analysis of the pattern associated with the stored coefficients occurs an estimation is made of the cut frequencies of a 2D band pass filter simulating the pattern of stored transform coefficients by random filtering noise in the frequency domain. By using the technique of the present principles, applicants obtain a set of cut frequencies useful for film grain modeling with the use of to enable simulation of film grain for blending into an image to enhance contrast for viewing.

35 U.S.C. §101 Rejection of Claims 1, 3 and 12

Claim 1, 3 and 12 stands rejected under 35 U.S.C. §101 as drawn to a non-statutory process. As presently amendment, claims 1, 3 and 12 fully comply with 35 U.S.C. §101 for the reasons given below.

As announced by the Court of Appeals for the Federal Circuit in the recently decided case *In Re Bilski*, 545 F. 3d 943, 953 (Fed Cir. 2008), the appropriate test for determining compliance with 35 U.S.C. §101 is the "machine or transformation" test as elucidated by the U.S. Supreme Court in *Benson*, 409 U.S. 70. In particular, to be eligible for a patent under 35 U.S.C. §101, a process must be tied to a particular machine or transform a particular article to a different state or thing.

Applicants maintain that claims 1, 3 and 12 clearly satisfy the "transformation" prong of the machine or transformation test as set forth in *Bilsky*. The process recited in these claims clearly results in a transformation from a set of film grain samples into a two-dimensional band pass filter that can simulate a set transform coefficients, which when

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inversely transformed, yield the original film grain samples. In this regard, applicant's claim transforms a set of film grain samples, typically represented by random noise, into cut frequencies associated with a two-dimensional filter.

In rejecting applicants' claim under 35 U.S.C. §101, the examiner asserts that applicants' claims perform no underlying transformation. Yet, as described above, applicants' claimed method does indeed produce a transformation, namely a transformation from film grain samples (a particular form of high frequency noise) to cut frequencies associated with a two dimensional filter for simulating the pattern of transform coefficients associated with such film grain samples.

Applicants also contend that claims 1 and 12 also satisfy the "machine" prong of *Bilski* as well. As recited in claims 1, 3, and 12, applicants practice their method of modeling film grain in connection with a two-dimensional filter, which for purposes of *Bilski*, constitutes a machine.

In summary, applicants claims 1, 3, and 12 fully comply with 35 U.S.C. §101. Therefore, applicants request withdrawal of the 35 U.S.C. §101 rejection of these claims.

35 U.S.C. 103(a) Rejection of Claims 1, 3 and 12

Claims 1, 3, and 12 stand rejected under 35 U.S.C. 103(a) as obvious over US Published Patent Application US 2004/0022318 in the name of Diego Garrido et al. published 5 February 2004, and claiming priority to a provisional application filed 29 May 2002. Throughout the Official action mailed 13 February 2009, the examiner repeatedly refers to the Garrido et al. reference as US Patent 6,728,317, which issued in the name of Gary Demos. Applicants assume that the examiner's repeated reference to US Patent 6,728,317 constituted an error.

Notwithstanding the examiner's assertions to the contrary, the Garrido et al. published application simply does not disclose or in anyway suggest applicants' claimed film grain simulation technique. In actuality, this reference teaches away from applicants' claimed invention.

The Garrido et al. published application concerns a technique for enhancing picture quality by the use of a coding technique that relies on a database of codebooks generated in accordance with difference pictures. In rejecting applicants' claims 1, 3, and 12 as obvious over Garrido et al, the examiner contends that this reference teaches applicants' step of transforming film grain samples into the frequency domain. *In support of this contention, the*

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examiner relies on paragraph [147], which teaches adaptive filtering **to eliminate patterns that are visually insignificant**. A careful examination of the cited portion relied upon by the examiner belies the examiner's assertion that the Garrido reference teaches transforming film grain samples into the frequency domain.

For ease of discussion, applicants have reproduced paragraph [0147] of Garrido et al. below:

> Adaptive filtering eliminates patterns that are visually insignificant, yet would incur a bit cost in latter encoding stages if left unmodified by the pre-processor. Patterns include film grain; film specs such as dirt, hair, lint, dust;

The above-cited paragraph says nothing about any transformation of film grain samples into the frequency domain. Rather, the paragraph speaks of **eliminating film grain patterns.** Eliminating the film grain patterns as taught by Garrido et al. leaves nothing to transform into the frequency domain, and ultimately, no ability to estimate cut frequencies of a two-dimensional filter to simulate the pattern of transform coefficients to simulate film grain.

Paragraph [0147] discussed above constitutes but one of several instances in the Garrido et al. published application regarding the desirability of removing film grain patterns. In this regard, applicants direct the examiner's attention to Paragraphs [0054] and [0131] of Garrido et al which also speak of the desirability of removing film grain patterns in connection with video coding. In view of the clear teaching in Garrido et al. of the desirability of removing film grain, applicants question how the examiner can suggest that automatic modeling of film grain patterns occurs in Garrido et al. or even that such automatic modeling would prove desirable. Given that Garrido et al. clearly teaches the desirability of removing film grain, why would Garrido lead anyone to find it useful to model film grain patterns? Indeed, since Garrido et al. speaks of completely removing film grain, applicants question how it would even be possible in view of Garrido et al. to formulate a process for modeling film grain, except by the use of impermissible hindsight to applicants' own teachings.

Applicants maintain that the examiner's 35 U.S.C. 103(a) rejection of claims 1, 3 and 12 over Garrido et al. must fail because the examiner has failed to establish a *prima facie* case of obvious. Not only has the examiner failed to demonstrate that Garrido et al. suggests the desirability of modeling a film grain pattern, the examiner has actually shown that Garrido et al. teaches the exact opposite, namely, the desirability of removing film grain from an image. Clearly, a skilled artisan seeking to simulate film grain within an image would not look to the Garrido et al. published application for motivation in view of the specific teaching in Garrido

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et al. of the desirability of removing film grain. Therefore, the examiner has failed to establish a *prima facie* case of obviousness, thus warranting withdrawal of the 35 U.S.C. 103(a) rejection of claims 1, 3, and 12.

35 U.S.C. 103(a) Rejection of Claim 2

Claim 2 stands rejected under 35 U.S.C. 103(a) as obvious over the Garrido et al publication discussed above, in view of US Published application 20040006575 in the name of Zubair Visharam et al. Applicants respectfully traverse this rejection.

Claim 2 depends from claim 1 and includes the additional feature of transmitting cut frequencies in a Supplemental Enhancement Information (SEI) message. In rejecting claim 1, the examiner contends that the Garrido et al. application would suggest all of the features of claim 1 except for the use of an SEI message taught by the Visharam et al. published application.

The Garrido et al. published application does not suggest all of the features of applicants' claim 1 for the reasons discussed previously. Indeed, Garrido et al. teaches away from applicants' invention, which itself would lead away from the examiner's proposed combination of Garrido et al. with Visharam et al. Further, the Visharam et al. publication contains no teaching or even any mention of film grain so notwithstanding the teaching regarding the use of the SEI message, the Visharam et al. publication would not cure the deficiencies of Garrido et al. Therefore, claim 2 patentably distinguishes over the art of record and applicants request withdrawal of the 35 U.S.C. 103(a) rejection of this claim.

35 U.S.C. 103(a) Rejection of Claims 4 and 8

Claims 4 and 8 stand rejected under 35 U.S.C. 103(a) as obvious in view of the Garrido et al. published application, further in view of US Published application 20020003903 in the name of Peter Engledrum et al., and further in view of US Patent 6,327,391 in the name of Shinji Ohnishi et al. Applicants respectfully traverse this rejection.

Claim 4 depends from claim 3 and further includes the feature of analyzing the pattern of transformed coefficients by the steps of: (1) computing a mean block of transform coefficients, (2) defining vertical and horizontal mean vectors, and (3) representing the vectors as curves that serve to establish the cut frequencies. Claim 8 contains similar features as claim 4. In rejecting claims 4 and 8, the examiner contends that the Garrido et al.

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publication suggests all of the features of claims 4 and 8 except computing mean blocks of transform coefficients for which the examiner relies on the Engledrum et al. publication. Further, the examiner relies on the Ohnishi et al. patent for establishing cut-off frequencies from mean vectors.

Claims 4 and 8 ultimately depend from claim 1 and incorporate by reference all of the features of that claim, including the step of transforming a set of film grain samples into the frequency domain. As discussed previously, the Garrido et al. publication not only fails to teach or suggest this feature of claim 1, but also the Garrido et al. publication actually teaches away from this feature. Neither the Engledrum et al. publication nor the Ohnishi et al say anything regarding film grain, and thus neither of these references cures the deficiencies of the Garrido et al. publication. Accordingly, the examiner's proposed combination of Garrido et al., Engledrum et al and Ohnishi et al. fails to teach all of the features of claim 1 incorporated by reference in claims 4 and 8. Therefore, claims 4 and 8 patentably distinguish over the art of record, warranting withdrawal of the 35 U.S.C. 103(a) rejection of these claims.

35 U.S.C. 103(a) Rejection of Claims 5 and 9

Claims 5 and 9 stand rejected under 35 U.S.C. 103(a) as obvious in view of the Garrido et al. published application, further in view of Engledrum et al. and Ohnishi et al, further in view of US Patent 6,285,711 in the name of Krishna Ratakonda et al. Applicants respectfully traverse the rejection.

Applicants' claims 5 and 9 depend from claims 4 and 8, respectively, and further teach the step of low-pass filtering at least one mean vector. In rejecting these claims, the examiner contends that the combination of Garrido et al., Engledrum et al and Ohnishi et al. teach all of the features of claim 4 and 8 and that the Ratakonda et al. patent teaches the step of low pass filtering at least one mean vector.

As discussed above with respect to claims 4 and 8, the examiner's proposed combination of Garrido et al., Engledrum et al and Ohnishi et al. fails. None of these references, especially the Garrido et al. publication, teaches a method for modeling film grain, let alone a method for modeling film grain that includes the step of transforming a set of film grain samples to the frequency domain, as recited in claim 1 and incorporated by reference in claims 4 and 8.

The Ratakonda et al patent concerns a technique for estimating a motion field and says nothing about modeling film grain, let alone a method for modeling film grain that includes

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the step of transforming a set of film grain samples to the frequency domain. Therefore, the Ratakonda et al. patent not does cure the deficiencies of the Garrido et al., Engledrum et al and Ohnishi et al. references. Therefore, claims 5 and 9 patentably distinguish over the art of record, thus warranting withdrawal of the 35 U.S.C. 103(a) rejection of these claims.

35 U.S.C. 103(a) Rejection of Claims 6, 7, 10, and 11

Claims 6, 7, 10, and 11 stand rejected under 35 U.S.C. 103(a) as obvious in view of the combination of Garrido et al., Engledrum et al and Ohnishi et al., as applied to claims 4 and 8, further in view of US patent 5,216,556 to Mitchell Steinberg et al. Applicants respectfully traverse the rejection.

Claims 6, 7, 10, and 11 further recite the establishing cut frequencies from a curve representing a mean vector. In rejecting these claims, the examiner contend that the combination of Garrido et al., Engledrum et al and Ohnishi et al. teaches all of the features of claims 4 and 8 and that the Steinberg et al. patent teaches stabling cut-frequencies from a curve.

As discussed above with respect to claims 4 and 8, the examiner's proposed combination of Garrido et al., Engledrum et al and Ohnishi et al. fails. None of these references, especially the Garrido et al. publication, teaches a method for modeling film grain, let alone a method for modeling film grain that includes the step of transforming a set of film grain samples to the frequency domain, as recited in claim 1 and incorporated by reference in claims 4 and 8.

The Steinberg et al. patent concerns a method for optimizing tape tension in a tape drive and says nothing about modeling film grain, let alone a method for modeling film grain that includes the step of transforming a set of film grain samples to the frequency domain. Therefore, the Steinberg et al. patent not does cure the deficiencies of the Garrido et al., Engledrum et al and Ohnishi et al. references. Therefore, claims 6, 7, 10 and 11 patentably distinguish over the art of record, thus warranting withdrawal of the 35 U.S.C. 103(a) rejection of these claims.

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Conclusion

In view of the foregoing amendments to the claims and the accompany remarks, applicants solicits entry of this amendment and allowance of the claims. If the Examiner cannot take such action, the Examiner should contact the applicant's attorney at (609) 734-6820, to schedule a mutually convenient date and time for a telephonic interview

No fees are believed due with regard to this Amendment. Please charge any fee or credit any overpayment to Deposit Account No. **07-0832**.

Respectfully submitted,
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